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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/294,367	04/20/1999	TADASHI SAWAYAMA	35.C13470	6055

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EXAMINER	
KACKAR, RAM N	

ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 01/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/294,367	SAWAYAMA ET AL.	
	Examiner	Art Unit	
	Ram N Kackar	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 January 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-27,35,38 and 45-55* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *15* is/are allowed.

6)☒ Claim(s) *12-14,16-27,35,38 and 45-55* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Election of claims12-27, 35-38 and 45-55, drawn to an apparatus is acknowledged.

Claim Rejections - 35 USC § 102(e)

2. Recent Statutory Changes to 35 U.S.C. § 102(e)

On November 2, 2002, President Bush signed the 21st Century Department of Justice Appropriations Authorization Act (H.R. 2215) (Pub. L. 107-273, 116 Stat. 1758 (2002)), which further amended 35 U.S.C. § 102(e), as revised by the American Inventors Protection Act of 1999 (AIPA) (Pub. L. 106-113, 113 Stat. 1501 (1999)). The revised provisions in 35 U.S.C. § 102(e) are completely retroactive and effective immediately for all applications being examined or patents being reexamined. Until all of the Office's automated systems are updated to reflect the revised statute, citation to the revised statute in Office actions is provided by this attachment. This attachment also substitutes for any citation of the text of 35 U.S.C. § 102(e), if made, in the attached Office action.

The following is a quotation of the appropriate paragraph of 35 U.S.C. § 102 in view of the AIPA and H.R. 2215 that forms the basis for the rejections under this section made in the attached Office action:

> **A person shall be entitled to a patent unless –**
>
> **(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.**

35 U.S.C. § 102(e), as revised by the AIPA and H.R. 2215, applies to all qualifying references, except when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. For such patents, the prior art date is determined under 35 U.S.C. § 102(e) as it existed prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. § 102(e)).

The following is a quotation of the appropriate paragraph of 35 U.S.C. § 102 prior to the amendment by the AIPA that forms the basis for the rejections under this section made in the attached Office action:

> **A person shall be entitled to a patent unless –**
>
> **(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.**

For more information on revised 35 U.S.C. § 102(e) visit the USPTO website at www.uspto.gov or call the Office of Patent Legal Administration at (703) 305-1622.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 45-46, 53 and 55 are rejected under 35 U.S.C. 102(e) as being anticipated by Schmitt et al (US Patent 6099649).

Schmitt et al disclose a processing apparatus having a processing chamber for CVD (Fig 1-14 and Col 1 line 11), exhaust means (Fig 1-22), chemical reaction means for the exhaust- hot trap (Fig 1-16) and a recovery means- a cold trap also a wall surface of the exhaust path (Fig 5-501). In another embodiment Schmitt discloses cooling means provided on the side of the exhaust means (Fig 1-28) while cooling uses liquid as cooling medium (Col 7 line 16).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 23-25, 35, 48-49 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitt et al (US Patent 6099649).

Schmitt et al disclose a processing apparatus having a processing chamber (Fig 1-14), exhaust means (Fig 1-22) and chemical reaction means for the exhaust- hot trap (Fig 1-16).

Schmitt et al do not expressly disclose that recovery means-cold trap is within 5 cm of the reaction means-hot trap.

Schmitt recommends that (Col 6 line 1-6) the cold trap should be following hot trap and close to it.

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to place the cold trap within 5 cm of the hot trap so as to avoid heating the foreline.

Regarding claim 35, velocity in general will be different at different regions and depends upon many factors related to use. It has no relevance to the issue of patentability. Regarding high melting point filament, Schmitt discloses resistance heating for the trap and it is known that heating elements in resistance heating have to be stable at high temperature

Regarding claims 48-49 and 51 it is well known and used practice to insulate devices which need to be controlled independently but are in physical proximity so as to have better control over temperature and conserve energy.

6. Claims 12, 26-27, 38 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitt et al (US Patent 6099649) in view of Ohta et al (US Patent 5209182).

Schmitt et al disclose a processing apparatus having a processing chamber for CVD (Fig 1-14 and Col 1 line 11), exhaust means (Fig 1-22), chemical reaction means for the exhaust- hot trap (Fig 1-16) and resistance heating (Col 5 line 38) which would be same as filament heating.

Schmitt et al do not expressly disclose the heater to be made of a filament or temperature control of the processing space member.

Ohta et al disclose a CVD apparatus using a hot filament of tungsten going at least to 2100 degrees C (Col 6 line 53) and a precise temperature control (Col 4 line 3 –28).

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to heat the trap of Schmitt et al with tungsten filament to get the high temperature needed for trapping the unused gas/by-products.

7. Claims 13-14 and 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitt et al (US Patent 6099649) in view of Smith et al (US Patent 5217545).

Schmitt et al disclose a processing apparatus having a processing chamber for CVD (Fig 1-14 and Col 1 line 11), exhaust means (Fig 1-22) and chemical reaction means for the exhaust-hot trap (Fig 1-16).

Schmitt et al do not disclose the heater to be comprised of phosphorus or silicon. Smith et al disclose a heater containing phosphorus and silicon with chromium and molybdenum, the ratio of silicon being more than 0.1% (Abstract).

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to use the alloy of Smith for its excellent resistance to oxidation at elevated temperature.

Claims 16 and 21 are rejected as being directed to an intended use.

8. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitt et al (US Patent 6099649) in view of Keiichi Akagawa (JP Patent 62236129).

Schmitt et al disclose a processing apparatus having a processing chamber for CVD (Fig 1-14 and Col 1 line 11), exhaust means (Fig 1-22) and chemical reaction means for the exhaust-hot trap (Fig 1-16). Schmitt et al disclose liquid or any other thing as cooling medium for cold trap but do not disclose it to be a gas.

Keiichi Akagawa discloses a refrigerant cooling. A refrigerant could be in a gaseous phase.

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to use liquid or refrigerant gas for cooling of cold trap.

9. Claims 52 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitt et al (US Patent 6099649) in view of Kikuchi Yoshikazu (JP 63200820).

Schmitt et al disclose a processing apparatus having a processing chamber for CVD (Fig 1-14 and Col 1 line 11), exhaust means (Fig 1-22) and chemical reaction means for the exhaust-hot trap (Fig 1-16).

Schmitt et al do not disclose a catalyst acting on unreacted gas or by-product or that the non-reacted gas could be containing silicon.

Kikuchi Yoshikazu discloses a catalyst and silane gas as an unreacted gas.

Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to use a catalyst in addition to heating to completely react the unreacted gases and by-products.

Allowable Subject Matter

10. Claim 15 is allowed.

Response to Amendment

11. Applicant's arguments filed 01/03/2003 have been fully considered but they are not persuasive. Applicants arguments and Examiners answers follow:

Applicant: Rejections of claim 45, 55 and 23, 35.

Examiner: The issues raised by the applicant pertain to the use of the apparatus and not to any structural limitation claimed.

Applicant: Rejections of claim 12.

Examiner; Ohta et al disclose heating filament of tungsten. Heating filaments of tungsten are very common. Regular incandescent lamp has tungsten filaments.

Applicant: Rejections of claim 18.

Examiner: Smith et al clearly discloses a heating element comprising a resistance conductor enclosed in metal sheath. Metal sheath is an integral part of the heating element.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 703 305 3996. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703 308 1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

RK
January 11, 2003

SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700